

# Source Water Assessment Program (SWAP) Report For New Berlin Memorial School



Prepared by the  
Massachusetts Department of  
Environmental Protection,  
Bureau of Resource Protection,  
Drinking Water Program

Date Prepared:  
March 13, 2001

**Table 1: Public Water System (PWS) Information**

<i>PWS NAME</i>	New Berlin Memorial School
<i>PWS Address</i>	34 South Street
<i>City/Town</i>	Berlin
<i>PWS ID Number</i>	2028009
<i>Local Contact</i>	Charles Kellner
<i>Phone Number</i>	(978) 838-2417

<i>Well Name</i>	<i>Source ID#</i>	<i>Zone I (in feet)</i>	<i>IWPA (in feet)</i>	<i>Source Susceptibility</i>
WELL #1	2028009-01G	334	1,200	High

## What is SWAP?

The Source Water Assessment Program (SWAP) established under the federal Safe Drinking Water Act requires every state to:

- ? inventory land uses within the recharge areas of all public water supply sources;
- ? assess the susceptibility of drinking water sources to contamination from these land uses; and
- ? publicize the results to provide support for improved protection.

## SWAP and Water Quality

Susceptibility of a drinking water source does *not* imply poor water quality. Actual water quality is best reflected by the results of regular water tests.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

## Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including septic systems, road maintenance, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

### Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential contaminant sources, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

### This report includes:

1. Description of the Water System
2. Discussion of Land Uses within Protection Areas
3. Recommendations for Protection
4. Attached Map of the Protection Areas

## 1. Description of the Water System

The well for New Berlin Memorial School is located in the eastern portion of the property within the wetlands abutting the school property. The well has a Zone I of 334 feet and an Interim Wellhead Protection Area (IWPA) of 1,200 feet. The well is a 6-inch diameter bedrock well which was drilled to a depth of 468 feet. A small pond is located approximately 90 feet south of the well. The well is located in an aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barriers that can prevent contaminant migration. Please refer to the attached map of the Zone I and IWPA.

The well has no treatment at this time. For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1.

### What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and an Interim Wellhead Protection Area (IWPA).

- **The Zone I** is the area that should be owned or controlled by the water supplier and limited to water supply activities.

- **The IWPA** is the larger area that is likely to contribute water to the well.

In many instances the IWPA does not include the entire land area that could contribute water to the well. Therefore, the well may be susceptible to contamination from activities outside of the IWPA that are not identified in this report.

### What is Susceptibility?

Susceptibility is a measure of a well's potential to become contaminated due to land uses and activities within the Zone I and Interim Wellhead Protection Area (IWPA).

## 2. Discussion of Land Uses in the Protection Areas

There are a number of land uses and activities within the drinking water supply protection areas that are potential sources of contamination.

Key issues include:

1. **Inappropriate Activities in Zone I;**
2. **An Aboveground Storage Tank (AST) with propane;**
3. **Athletic field; and**
4. **Aquatic wildlife.**

The overall ranking of susceptibility to contamination for the well is high, based on the presence at least one high threat land use or activity in the IWPA, as seen in Table 2.

**1. Zone I** – Currently, the well does not meet DEP's restrictions, which only allow water supply related activities in Zone Is. The facility's Zone I contains school buildings, playground and empty rusting 55 gallon drums and a car frame. The public water supplier owns and/or controls all land encompassed by the Zone

#### Recommendations:

- ✓ Remove all non-water supply activities from the Zone I, to comply with DEP's Zone I requirements. Please note that water systems not meeting DEP Zone I requirements must get DEP approval and address Zone I issues prior to increasing water use or modifying system.
- ✓ If the school intends to continue utilizing the structures in Zone 1, use Best Management Practices (BMPs) to control activities that could pose a threat to the water supply.

#### 2. Aboveground storage tank (AST) with propane and others with heating fuel –

2-4,000 gallon AST with heating oil and 1-1,000 gallon propane tank are located within the IWPA of the water supply. The AST with fuel oil was installed in 1999. The tank is double walled with leak detection and bermed. If managed improperly, Aboveground Storage Tanks can be a potential contaminant source due to leaks or spills of the chemicals they store.

#### Recommendation:

- ✓ Comply with all provisions of the regulations regarding AST. Any modifications to the AST must be accomplished in a manner consistent with Massachusetts's plumbing, building, and fire code requirements. Consult with

**Table 2: Table of Activities within the Water Supply Protection Areas**

Facility Type	Potential Contaminant Sources	Zone I	IWPA	Threat	Comments
School	Parking lot, driveways & roads	No	Yes	Moderate	Limit road salt usage and provide drainage away from wells
	Athletic Field	No	Yes	Moderate	Fertilizer and pesticide use
	Clandestine (Illegal) Dumping	Yes	Yes	High	Remove 55 gallon drum and automobile frame.
	Fuel Storage Above Ground	No	Yes	Moderate	2-4,000 gallon propane tank, on impervious surface
	Aquatic wildlife	Yes	Yes	Low	Stream and pond
	Structures	Yes	Yes	-----	Non-water supply structures in Zone I

\* -For more information on Contaminants of Concern associated with individual facility types and land uses please see the SWAP Draft Land Use / Associated Contaminants Matrix on DEP's website - [www.state.ma.us/dep/brp/dws/](http://www.state.ma.us/dep/brp/dws/).

## Glossary

**Zone I:** The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. To determine your Zone I radius, refer to the attached map.

**IWPA:** A 400 foot to ½ mile radius around a public water supply well proportional to its pumping rate; the area DEP recommends for protection in the absence of a defined Zone I I. To determine IWPA radius, refer to the attached map.

**Zone II:** The primary recharge area defined by a hydrogeologic study.

**Aquifer:** An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

**Hydrogeologic Barrier:** An underground layer of impermeable material that resists penetration by water.

**Recharge Area:** The surface area that contributes water to a well.

the local fire department for any additional local code requirements regarding ASTs.

3. **Athletic field** - A soccer field is located within the IWPA. Chemical fertilizers contain large amounts of phosphorus and nitrogen that, if applied improperly or over-applied, can leach into groundwater and potentially contaminate the water supply.

**Recommendation:**

- ✓ Use Best Management Practices (BMPs) to assure that fertilizer is stored, handled, and applied to protect the school water supply
4. **Aquatic wildlife** - A pond is located approximately 90 feet from the well, and a stream is located within the Zone 1 and IWPA of the well. Duck and other wildlife waste in and around the pond is a potential source of contamination to the water supply.

**Recommendation:**

- ✓ Discourage wildlife by prohibiting the feeding of ducks and wildlife.

## 3. Protection Recommendations

The New Berlin school should review and adopt the following recommendations at the School:

### Training and Education:

- ✓ Train staff on proper hazardous material disposal, emergency response, and best management practices; include custodial staff, groundskeepers, certified operator, food preparation staff, and those teachers involved in hazardous materials use areas such as the art room, science labs, and shop rooms.
- ✓ Post drinking water protection area signs at key visibility locations.
- ✓ Incorporate groundwater education into school curriculum.

### Facilities Management:

- ✓ Implement standard operating procedures regarding proper storage, use and disposal of hazardous materials.

### Planning:

- ✓ Work with local officials in Berlin to include the school's IWPA in Aquifer Protection District Bylaws and other regulations and to assist you in improving protection.
- ✓ Supplement the SWAP assessment with additional local information and incorporate it into water supply educational efforts. Use a potential contaminant threat inventory to assist in setting priorities, focusing inspection, and creating educational activities.

These options would provide some additional protection to the water supply currently serving the schools.

### Funding:

The Department's Wellhead Grant Protection Program provides funds to assist public water suppliers in addressing Wellhead

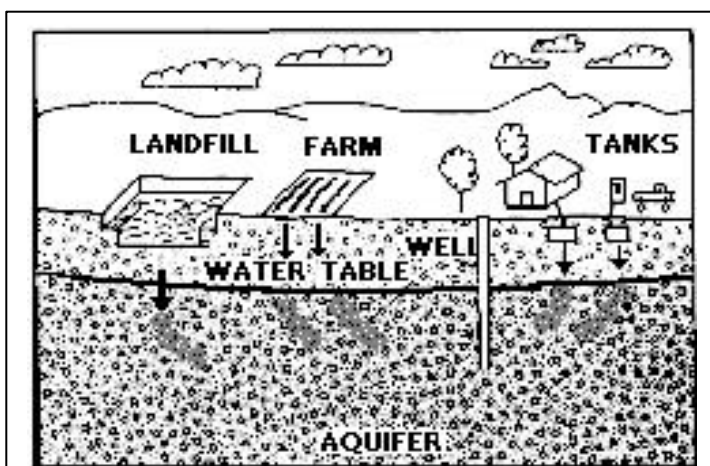


Figure 1: Example of how a well could become contaminated by different land uses and activities.

### **For More Information:**

Contact Josephine Yemoh-Ndi in DEP's Worcester Office at (508) 792-7650 x 5030 for more information and for assistance in improving current protection measures.

More information relating to drinking water and source protection is available on DEP's web site at:  
[www.state.ma.us/dep/brp/dws](http://www.state.ma.us/dep/brp/dws).

Copies of this assessment have been provided to the water department, town boards, the town library and the local media.

protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the 2001 "Wellhead Protection Grant Program". For additional information, please refer to the attached program fact sheet (Please note: each program year the Department posts a new Request for Response for the Grant program (RFR)).

These recommendations are only part of your ongoing local drinking water source protection. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures.

### **4. Attachments:**

- Map of the Public Water Supply (PWS) Protection Area.
- Recommended Source Protection Measures Factsheet
- Your Septic System Brochure
- Healthy Schools Fact Sheet
- Wellhead Protection Grant Program Fact Sheet
- Source Protection Sign Order Form

#### **Additional Documents:**

To help with source protection efforts, more information is available by request or online at [www.state.ma.us/dep/brp/dws](http://www.state.ma.us/dep/brp/dws), including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix